

## **REMARKS**

This application has been carefully reviewed in light of the Office Action mailed on April 30, 2009. Applicant respectfully requests consideration of the foregoing amendment in light of the following remarks.

### **Summary of the Office Action**

In the Office Action of April 30, 2009, claims 27-37 were rejected under 35 U.S.C. 103(a) as allegedly being obvious over U.S. Patent Application Publication No. 2002/0080396 to Silverbrook et al. (hereinafter referred to as "Silverbrook") in view of U.S. Patent No. 6,613,403 to Tan et al. (hereinafter referred to as "Tan") and U.S. Patent No. 6,962,450 to Brouhon et al. (hereinafter referred to as "Brouhon"). No other issues were raised.

### **Status of the Application**

Upon entry of the present amendment, claims 27, 30-32 and 35-37 will have been amended, and claims 38-39 will have been added. Accordingly, claims 27-39 remain pending in the application.

### **Rejection of Claims 27-37 under 35 U.S.C. 103(a) over Silverbrook, Tan and Brouhon**

Claims 27-37 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Silverbrook, Tan and Brouhon (*see, e.g.*, pages 2-9 of Office Action). This rejection is respectfully traversed.

Claim 27 is not obvious over Silverbrook, Tan and Brouhon, because the cited references do not teach or suggest “a recording apparatus for forming an image on a recording medium, using at least a first recording head for discharging a carbon black ink and a second recording head for discharging a dye black ink, a dye cyan ink, a dye magenta ink and a dye yellow ink.” (emphasis added) where the apparatus comprises “an image processing unit configured to create a first recording data by reading pattern data for recording positional information image representing positions on a recording medium and to create a second recording data by reading recording data for recording an image and synthesize the first recording data and the second recording data,” (emphasis added) and “a recording control unit configured to execute recording of the first recording data by the first recording head and recording of the second recording data by the second recording head concurrently, based on the synthesized recording data,” (emphasis added) and wherein “the carbon black ink is detectable by a detector configured to detect the carbon black ink recorded on the recording medium, the carbon black ink is used to record the positional information image, and the dye cyan ink, the dye magenta ink, the dye yellow ink, and the dye black ink, which are undetectable by the detector, are used to record the image” (emphasis added), as recited in the claim.

Embodiments of the apparatus as claimed may thus allow for positional information to be recorded on a recording medium using a carbon black ink that is detectable by a detector, and for the image to be recorded on the recording medium using a dye black ink, cyan ink, magenta ink and yellow ink that are not detectable by the detector, such that positional information recorded on the recording medium together with the image can be detected by a carbon sensor without confusing with the image. Embodiments of the apparatus may thus allow, for example, recognizing the position of handwritten characters on the recording medium having the image thereon, by reading the positional information with a pen integrated with a miniature camera capable of detecting the carbon black ink (see, e.g., paragraph [0040]).

Silverbrook does not teach or suggest such a recording apparatus as that claimed, having first and second recording heads that record positional information using a carbon black ink that is detectable by a detector, and that record an image using a dye black ink, cyan ink, magenta ink and yellow ink that are not detectable by the detector. Instead, Silverbrook teaches an "interface surface printer using invisible ink" (title) for the printing of netpages that are "invisibly tagged with references to an online description of the page" (paragraph [0148]), for example with infrared-absorptive ink, such that markings made with a netpage pen on the surface of the netpage can be "simultaneously captured and processed by the netpage system (paragraph [0148].) Thus, Silverbrook teaches using an invisible ink, such as an infrared-absorptive ink, for the printing of invisibly tagged netpages, but does not teach or suggest using a carbon black ink, which is a visible ink, for the recording of positional information on the recording medium. Silverbrook also teaches that the printer disclosed therein "simultaneously prints cyan, magenta, yellow, black and infrared inks" (paragraph [0243]), however Silverbrook does not teach or suggest that the black ink is a detectable carbon black ink used for recording positional information, or that the other inks are non-detectable inks used to record an image concurrently with the recording of the positional information. Accordingly, Silverbrook does not teach or suggest the recording apparatus having the first and second recording heads that record the positional information and image data using the detectable carbon black ink and non-detectable dye inks, as claimed.

Applicant furthermore notes that the Office Action refers to Silverbrook as allegedly teaching an IR-absorptive black ink that is a carbon ink (*see, e.g.*, page 5 of Office Action). However, Applicant respectfully disputes this interpretation, as Silverbrook does not teach that the IR-absorptive black ink is a carbon ink, and in particular the sections of Silverbrook referred to in the Office Action

(*see, e.g.*, paragraph [0223], [0243], [0252], [0520] and Fig. 54) do not teach or suggest the use of a carbon ink as the IR-absorptive black ink.

Tan does not make up for the deficiencies of Silverbrook. Instead, in the section referred to in the Office Action, Tan teaches that "conventional colorants may be added to the printing ink" (column 9, lines 7-8) and that "[t]hese colorants can be organic or inorganic dyes or pigments and are preferably organic dyes" (column 9, lines 10-12). Thus, Tan generally teaches that conventional colorants can comprise combinations of organic or inorganic dyes or pigments. However, Tan does not teach or suggest a recording apparatus such as that claimed having first and second recording heads that record positional information using a carbon black ink that is detectable by a detector, and that record an image using a dye black ink, cyan ink, magenta ink and yellow ink that are not detectable by the detector. In fact, Tan even teaches against the use of a detectable carbon black ink by teaching that "[p]referably, the colorant is free of carbon black, and, where a black image is desired, it is necessary to combine organic dyes to achieve such coloration" (column 9, lines 20-22). Accordingly, Tan teaches against the use of a carbon black ink in a printing process, and thus also teaches against the recording apparatus having the recording head that records positional information using the carbon black ink, as claimed.

Brouhon also does not make up for the deficiencies of Silverbrook and Tan. In the section referred to in the Office Action, Brouhon generally teaches generating a position identifying pattern on a document (*see, e.g.*, column 1, lines 21-27). However, Brouhon does not teach or suggest that the position identifying pattern is printed with a detectable ink concurrently with printing of an image with an ink that is not detectable by a detector, let alone performing such printing with a detectable ink that is a carbon black ink, and a non-detectable ink that is a dye black ink, cyan ink, magenta ink and yellow ink. Accordingly, Brouhon also does not teach or suggest a recording apparatus having first and second recording heads that record positional information using a carbon black

ink that is detectable by a detector, and that record an image using a dye black ink, cyan ink, magenta ink and yellow ink that are not detectable by the detector, as in the recording apparatus as claimed.

Thus, as neither Silverbrook, Tan, nor Brouhon teach or suggest the recording apparatus having the first and second recording heads that record positional information with a carbon black ink that is detectable by a detector, and image data with a dye black ink, dye cyan ink, dye magenta ink and dye yellow ink that are not detectable by the detector, it is considered that claim 27 is patentable over the teachings of the combined references. Claims 28-31 depend from claim 27, and thus are also patentable over the cited references for at least the same reason as their base claim.

Regarding claim 32, it is noted that this claim is directed to a method for forming an image on a recording medium via a process that is similar to the functions performed by the recording apparatus of claim 27. In particular, the method of claim 32 comprises "creating a first recording data by reading pattern data for recording positional information image representing positions on a recording medium and creating a second recording data by reading recording data for recording an image and synthesizing the first recording data and the second recording data," and "executing recording of the first recording data by the first recording head and recording of the second recording data by the second recording head concurrently, based on the synthesized recording data," wherein "the carbon black ink is detectable by a detector configured to detect the carbon black ink recorded on the recording medium, the carbon black ink is used to record the positional information image, and the dye cyan ink, the dye magenta ink, the dye yellow ink, and the dye black ink, which are undetectable by the detector, are used to record the image" (emphasis added). Thus, claim 32, as well as claims 33-37 depending therefrom, are considered to be patentable over the Silverbrook, Tan and Brouhon references, for at least the same reasons as claim 27.

Accordingly, claims 27-37 are believed to be patentable over the combined teaching of Silverbrook, Tan and Brouhon, and thus the rejection of the claims under 35 U.S.C. 103(a) over these references is respectfully requested to be withdrawn.

### **Newly Added Claims**

Claims 38-39 are being added with the present amendment, and do not add any new matter.

Furthermore, claims 38-39 are also believed to be patentable over the Silverbrook, Tan and Brouhon references of record. In particular, it is noted that claim 38 is directed to a recording apparatus comprising "at least a first recording head for discharging carbon black ink and a second recording head for discharging dye black ink, a dye cyan ink, dye magenta ink and dye yellow ink," (emphasis added) "an image processing unit configured to create a first recording data by reading pattern data for recording positional information image representing positions on a recording medium and to create a second recording data by reading recording data for recording an image and synthesize the first recording data and the second recording data," (emphasis added) and "a recording control unit configured to execute recording of the first recording data by the first recording head and recording of the second recording data by the second recording head concurrently, based on the synthesized recording data" (emphasis added). Accordingly, claim 38 is similar to claim 27 discussed above, in that a carbon black ink is used to record positional information, while image data is concurrently recorded using a dye black ink, a dye cyan ink, dye magenta ink and dye yellow ink, and thus claim 38, as well as claim 39 depending therefrom, are believed to be allowable over the cited references for at least the same reasons as claim 27.

Claim 38 is furthermore not obvious over the cited references because the references do not teach or suggest "the recording apparatus further comprising a sensor unit configured to detect the positional information image recorded using the carbon black ink on the recording medium" (emphasis added), as recited in the claim. Instead, as discussed above, Silverbrook teaches detecting an invisible infrared-absorptive ink (*see, e.g.*, paragraph [0148]), but does not teach or suggest providing a sensor that detects positional information recorded with carbon black ink. Tan *teaches against* the use of carbon black ink by teaching that "[p]referably, the colorant is free of carbon black" (column 9, lines 20-22). Finally, while Brouhon teaches generating a position identifying pattern on a document (*see, e.g.*, column 1, lines 21-27), Brouhon does not teach or suggest that the position identifying pattern is detected with a sensor unit that detects information recorded using carbon black ink. Accordingly, as none of the references teaches or suggests using a sensor configured to detect positional information recorded using carbon black ink, it is considered that newly added claim 38 and claim 39 depending therefrom are patentable over the cited references.

## **CONCLUSION**

Applicant respectfully submits that all of the claims pending in the application meet the requirements for patentability, and respectfully requests that the Examiner indicate the allowance of such claims. Any amendments to the claims which have been made in this response, and which have not been specifically noted to overcome a rejection based upon prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

If any additional fee is required, please charge Deposit Account Number 502456. Should the Examiner have any questions, the Examiner may contact Applicant's representative at the telephone number below.

Respectfully submitted,

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/Abigail Cotton/

Date

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